

### REMARKS

Reconsideration and the timely allowance of the pending claims, in view of the following remarks, are respectfully requested.

Claims 1-20 are presently pending. By this Amendment, claims 1, 4 and 9 have been amended to provide a clearer presentation of the claimed subject matter. Claims 1 and 4 have been amended to specify that the groups  $R^1$  (or  $R^{1a}$  and  $R^{1b}$ ) and  $R^2$  (or  $R^{2a}$  and  $R^{2b}$ ) are in a cyclic polysilane with an inactive group. Support for these amendments can be found throughout Applicants' Specification. Specifically, the claims have been amended to recite:

(1)  $R^1$  and  $R^2$  with an alkyl group, a cycloalkyl group, an aryl group, or an aralkyl group which may be substituted with an alkyl group, a cycloalkyl group, an aryl group, or an aralkyl group (See Applicants' Specification page 39, lines 16-22 and on page 37, lines 16-22);

(2) a substituent of an aryl group in  $R^{1a}$  and  $R^{2a}$  with an alkyl group (See Applicants' Specification page 41, lines 9-10);

(3) a substituent of an alkyl group in  $R^{1b}$  and  $R^{2b}$  with a  $C_{5-8}$  cycloalkyl group or a  $C_{6-10}$  aryl group (See Applicants' Specification page 42, lines 8-12);

(4) a substituent of a cycloalkyl group in  $R^{1b}$  and  $R^{2b}$  with a linear or branched  $C_{1-4}$  alkyl group, a  $C_{5-8}$  cycloalkyl group or a  $C_{6-10}$  aryl group (See Applicants' Specification page 42, lines 12-15 and 8-12); and

(5) a substituent of an aryl group in  $R^{1b}$  and  $R^{2b}$  with an alkyl group (See Applicants' Specification page 42, lines 8-12). Applicants submit that no new matter has been introduced. Thus, claims 1-20 are presented for consideration, of which claim 1 is independent.

### I. Drawings and Specification

Applicants have amended Figure 5 to make the text in the upper right hand corner of that drawing legible. Applicants have also amended the Specification to place it into conformity with Figure 5. No new matter is added. Applicants respectfully request reconsideration and withdrawal of this objection to the drawings.

## **II. Prior Art Rejections Under 35 U.S.C. §§ 102(b) and 103(a)**

Claim 1 positively recites, *inter alia*, that the groups R<sup>1</sup> (or R<sup>1a</sup> and R<sup>1b</sup>) and R<sup>2</sup> (or R<sup>2a</sup> and R<sup>2b</sup>) are in a cyclic polysilane with an inactive group.

Hiraoka discloses "an optical device having an optical functional material as a constitutional element, wherein the optical functional material comprising a polymer chain selected from the group consisting of polysilane, polygermane, polystannane and a copolymer thereof, and a network structure of a metal oxide consisting of a metal atom bonded to another metal atom through an oxygen atom: wherein the polymer chain is chemically cross linked with a glass matrix of the network structure of the metal oxide at three or more positions directly or indirectly, resulting in a cured state: and an area of signals due to a silicon, germanium or stannum crystal observed within a range of 20 to 60 degrees of 2θ is not more than 1% of the total area of the all signals according to x-ray diffraction using a Cu tubular bulb as a X-ray source" (See Hiraoka, claim 1).

Hiraoka describes "The glass composite material having this structure is produced by a sol-gel method, for example, by using a precursor composition comprising a polymer selected from the group consisting of polysilane, polygermane and polystannane and a copolymer thereof in which at least one polar group selected from the group consisting of hydroxyl group, alkoxyl group, amino group, ammonium group, imino group, carbonyl group, carboxyl group, amide group, imido group, urethane group, nitro group, thiol group, thioether group, thioester group, sulfonyl group, sulfoxyl group, fluoro group, chloro group, bromo group and iodo group is introduced into a side chain, and a metal oxide sol-forming substance such as metal alkoxide" (See Hiraoka, column 7, lines 7-19) and "the glass composite material having the structure (B) is synthesized from a precursor polymer wherein across linkable group (for example, hydroxyl group, alkoxyl group, ester group such as acetoxy group, sulfonate group such as trifluoromethanesulfoxy group) as the side chain is directly bonded to the main chain of polysilanes" (See Hiraoka, column 15, lines 32-37).

Further, Hiraoka describes a "cyclic polymer having a cyclic structure in the main chain can also be used as polysilanes. Particularly, 5- or 6-membered cyclic polysilanes are stable since the cyclic structure is stable due to bond angles. Such a stable cyclic structure is further reinforced by cross linking" (See Hiraoka, column 7, lines 46-50).

Hiraoka describes that "the three-dimensional polymer can also be used as a wiring material or a junction material between the electrode and wiring. Also, in this case, when the functional group is introduced into the surface of the electrode and these are chemically

bonded through an oxygen atom which is bonded directly to the polymer main chain, the electric resistance of the junction part using the three-dimensional polymer is reduced and the adhesive strength is improved, thereby forming a good junction" (See Hiraoka, column 35, line 64 to column 36, line 5).

Hiraoka, however, does not disclose or suggest an electrophotographic photosensitive element comprising the cyclic polysilane having the specific R<sup>1</sup> (or R<sup>1a</sup> and R<sup>1b</sup>) and R<sup>2</sup> (or R<sup>2a</sup> and R<sup>2b</sup>), as recited by Applicants in claim 1. That is, a polysilane in Hiraoka indispensably has a reactive or functional group such as hydroxyl group and alkoxy group since a polymer chain derived from the polysilane is necessarily crosslinked to the glass matrix. Therefore, the polysilane of Hiraoka differs significantly from the polysilane recited in Applicants' claim 1 for not having an inactive group. Further, Hiraoka does not disclose or suggest Applicants' claim 1 because the polysilane in Hiraoka, as above-mentioned, needs to have the reactive or functional group for crosslinking.

Hiraoka can never improve the material characteristics, such as durability, without crosslinking the polysilane and the glass matrix. Further, the crosslinking makes a manufacturing process of an electrophotographic photosensitive element complicated. Furthermore, in the case of forming the electrophotographic photosensitive element by crosslinking, the components such as a charge-generating agent and a charge-transporting agent are easy to fix. Therefore, these components are used in abundance for imparting enough of a charge-generating and a charge-transporting feature to the electrophotographic photosensitive element, and, as a result, electrostatic properties, which are an important characteristic in the electrophotographic photosensitive element, deteriorate. Accordingly, a charge-generating feature, a charge-transporting feature and an electrostatic property are incompatible.

On the other hand, according to an electrophotographic photosensitive element as recited in claim 1, since at least a top surface layer thereof comprises the specific cyclicpolysilane having an inactive group, various characteristics such as water repellency, lubricity and electrostatic property can be improved without a crosslinking process.

For all of the foregoing reasons, Hiraoka does not disclose all elements of Applicants' claimed invention, and therefore is not a proper basis for a §102(b) rejection thereof. Nor is there any disclosure or teaching in Hiraoka that would have suggested Applicants' claimed invention to one of ordinary skill in this art. Further, there is no disclosure or teaching in any of Hiraoka that would have suggested the desirability of modifying any portions thereof

effectively to anticipate or suggest Applicants' claimed invention. Thus reconsideration and withdrawal of this rejection, and allowance of all claims 1-20 is respectfully requested.

**III. Conclusion.**


All matters having been addressed and in view of the foregoing, Applicant respectfully requests the entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of all pending claims.

Applicant's representative remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP  
SHAW PITTMAN LLP

By:   
T. Y. Winarski  
Reg. No. 41381  
Tel. No. 703.770.7948  
Fax No. 703.770.7901

Date: August 31, 2007  
P.O. Box 10500  
McLean, VA 22102  
(703) 770-7900

**IN THE DRAWINGS:**

The attached sheet of drawings include changes to Figure 5. This sheet replaces the original sheet showing Figure 5.

Attachment: Replacement Sheet.